

REMARKS

Claims 1-35 are pending. No new matter has been added by way of the present amendments. For instance, claim 1 has been amended to clarify the present invention. In addition, claims 1, 7, 17, 21, 22 and 31 have been amended to purposes of antecedent basis. None of these amendments are narrowing in nature.

In view of the following remarks, the Examiner is respectfully requested to withdraw all rejections and allow the currently pending claims.

Issues Under 35 U.S.C. §112, second paragraph

The Examiner has rejected claims 1-22 and 31 under 35 U.S.C. §112, second paragraph for the reasons recited at page 2 of the outstanding Office Action. Applicants respectfully traverse these rejections.

First, the Examiner has rejected claims 1, 7, 21 and 22 for recitation of the phrase "a concentration of calcium ions". Applicants traverse and submit that these claims have been amended to recite "the concentration of said calcium ions". Reconsideration and withdrawal of this rejection are requested.

Second, the Examiner asserts that it is unclear if one can leave the calcium ions and add counter ions without decreasing or removing calcium ions. Applicants submit that it is possible to leave the calcium ions and add counter ions without decreasing or removing calcium ions. The Examiner's attention is directed to the present specification at page 8, lines 11-17 in this regard.

Applicants have amended claim 1 to clarify this matter. Reconsideration and withdrawal of this rejection are requested.

Third, the Examiner has rejected claims 17 and 31 for the recitation of the phrase "a genetic recombination technique". Applicants traverse and submit that the relevant claim language has been amended to recite "genetic recombination". Reconsideration and withdrawal of this rejection are requested.

Issues Under 35 U.S.C. §102(b)

The Examiner has rejected claims 1 and 23 under 35 U.S.C. §102(b) as being anticipated by Bryant et al., 1983 (BioChem J. Vol. 211, pp. 709-716). Applicants respectfully traverse this rejection.

The method disclosed in Bryant is distinct from the claimed method. The method of Bryant is essentially a method for purification using anion exchange chromatography in place of a cation exchange carrier. The method of Bryant is thus carried out wherein:

- (1) an anion exchange resin is used,
- (2) a desired calcium-binding protein is adsorbed in the absence of calcium ions, and
- (3) the protein is eluted with a buffer containing calcium ions.

Each of all the features (1) to (3) are quite distinct from those of the claimed method. In contrast to Bryant, the claimed method utilizes a cation exchange carrier for purifying a calcium

ion-binding protein whereas the method disclosed in Bryant uses an anion exchanger, i.e. DE-52 ion-exchange DEAE-cellulose, (cf. page 711, right column, the flow diagram in Scheme 1, and page 712, left column of Bryant). Although a cation exchanger, i.e. Amberlite CG-50 ion-exchange resin, is disclosed by Bryant, it should be noted that its use is for the purpose of removing calcium ions from the pooled fractions containing a calcium-binding protein but not for purifying a calcium-binding protein (cf. page 710, left column under the title "Low-Ca²⁺ buffers", and page 712, left column of Bryant).

Additionally, according to the claimed method, the sample is contacted with a cation exchange carrier in the presence of calcium ions, e.g. 5 to 100 mM, preferably 10 to 30 mM calcium ions whereas the method of Bryant et al. is conducted in the absence of calcium ions, or as low as 10 mM, that is, after obtaining calcium-free conditions by the use of a calcium exchanger resin as mentioned above (cf. abstract, and page 714, right column of Bryant).

Moreover, the elution conditions are also different between the present invention and Bryant in that according to the present invention the adsorbed protein is eluted by decreasing or removing the concentration of calcium ions and/or adding counter ions other than calcium ions. In contrast, according to Bryant, the elution of the protein is achieved by adding calcium at 1 mM or by using a buffer containing an increased amount of calcium ions (cf. page 711, right column, page 712, left column, and Fig

2.C in the legend of Bryant).

Accordingly, Applicants respectfully submit that distinctions exist between the presently claimed invention and the disclosure of Bryant. As such, no anticipation of claims 1 or 23 based upon Bryant exists. Reconsideration and withdrawal of this rejection are respectfully requested.

In view of the above, Applicants respectfully request that the Examiner withdraw all rejections and allow the currently pending claims. The issuance of a Notice of Allowability directed to claims 1-35 is earnestly requested.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17; particularly, extension of time fees.

Respectfully submitted,

BIRCH, STEWART, KOLASCH & BIRCH, LLP



By

Marc S. Weiner, #32,181

Craig A. McRobbie, #42,874

MSW/CAM/mmi/gh
0020-4973P

P.O. Box 747
Falls Church, VA 22040-0747
(703) 205-8000